

CLAIMS

1. A composition suitable for forming cheese, said composition comprising a starter acidification culture and an exopolysaccharide (EPS) fermentation culture wherein said
5 EPS culture contains a viable lactic acid micro-organism, wherein said lactic acid micro-organism is capable of producing an enzyme, and wherein said enzyme is capable of producing an EPS.
2. A composition according to claim 1 wherein the starter acidification culture comprises a
10 micro-organism that is capable of fermenting lactic acid.
3. A composition according to claim 2 wherein said starter acidification culture is a culture of a lactic acid bacterium.
- 15 4. A composition according to claim 1 wherein the viable lactic acid micro-organism of the EPS fermentation culture is a lactic acid bacterium.
5. A composition according to claim 4 wherein said viable lactic acid bacterium is selected from the group consisting of the genus *Streptococcus*, the genus *Lactococcus*, the genus
20 *Lactobacillus*, and the genus *Leuconostoc*.
6. A composition according to any one of the preceding claims wherein said EPS production occurs separately from acidification by said starter acidification culture.
- 25 7. A composition according to claim 6 wherein the EPS is produced *in situ*.
8. A composition according to claim 7 wherein said EPS is produced in the presence of a suitable enzyme substrate selected from the group consisting of sucrose, fructose, glucose, maltose, lactose, stacchyose, raffinose and verbascose.
30
9. A composition according to claim 8, wherein the EPS is a hetero-EPS.

10. A composition according to claim 9, wherein the lactic acid micro-organism of the EPS fermentation culture is *Streptococcus thermophilus* V3.
- 5 11. A composition according to claim 9 wherein the lactic acid micro-organism is *Lactococcus lactis* ssp. *cremoris* 322.
12. A composition according to claim 7, wherein the EPS is a homo-EPS.
- 10 13. A composition according to claim 12, wherein the lactic acid micro-organism of the EPS fermentation culture can be selected from the group consisting of *Lactobacillus sakei* ssp., *Lactobacillus plantarum* ssp., *Lactobacillus salivarium* ssp and *Leuconostoc mesenteroides* ssp.
- 15 14. A composition according to claim 13, wherein the lactic acid bacterium of the EPS fermentation culture is *Lactobacillus sakei* 570.
15. A composition according to claim 13, wherein the lactic acid bacterium of the EPS fermentation culture is *Leuconostoc mesenteroides* 808.
- 20 16. Use of a composition to prepare a cheese product wherein the composition comprises a starter acidification culture and an EPS fermentation culture wherein said EPS fermentation culture contains a viable lactic acid micro-organism, wherein said lactic acid micro-organism is capable of producing an enzyme, and wherein said enzyme is capable of
- 25 producing an EPS.
17. A cheese product prepared by using the composition according to any one of claims 1 to 15.
- 30 18. A cheese product according to claim 17 wherein the cheese product is a soft cheese product.

19. A cheese product according to claim 18 wherein said EPS is capable of modulating the moisture level of said product.
- 5 20. A cheese product according to claim 19 wherein the target moisture is capable of being achieved by optimising whey release during curd processing.
21. A cheese product according to any one of claim 17 to 20 wherein said EPS increases the stability and/or elasticity of said curd.
- 10 22. A cheese product according to claim 21 wherein the curd exhibits greater resilience to physical manipulations.
23. A cheese product according to claim 22 wherein said curd is capable of being manipulated
15 with conventional curd manipulating equipment.
24. A cheese product according to any one of claims 17 to 23 wherein said EPS is capable of forming a cheese curd containing about 50% moisture level.
- 20 25. A cheese product according to claim 24, wherein said curd has less than 5% loss in moisture during ripening to a cheese product.
- 25 26. A cheese product according to any one of claims 17-25 wherein said EPS is capable of improving at least one of the texture, aroma, flavour, mildness, consistency, body, mouth feel, firmness, viscosity, gel fracture, wheying off, syneresis, structure and/or organoleptic properties, nutrition and/or health benefits of the cheese product.
- 30 27. A method for forming a cheese the method comprising admixing a composition with a medium suitable for forming cheese so as to form a cheese curd containing about 50% moisture and wherein during ripening of the cheese product less than about 5% moisture is lost; wherein the composition is a composition according to any one of claims 1 to 15.

28. A cheese product obtained according to the method of claim 27.
- 5 29. Use of a composition according to any one of claims 1 to 15, a cheese product according to any one of claims 17 to 26 in accordance with claim 16, or a cheese product according to claim 28 obtained by the method of claim 27 to modulate the microbial balance of the gastrointestinal tract after consumption of said cheese product.
- 10 30. A process for *in situ* production of an EPS comprising the steps of:
- providing a composition according to any one of claims 1 to 15,
 - permitting growth of said micro-organism so as to produce the EPS, and
 - optionally isolating said EPS.
- 15 31. A process according to claim 30 wherein said EPS is a homo-EPS.
32. A process according to claim 30 or claim 31 wherein the micro-organism is *Lactobacillus sakei* 570.
- 20 33. Use of an EPS produced by the process of any one of claims 30, 31 or 32 for modulating the moisture content of a cheese product.
- 25 34. Use of EPS in the manufacture of a cheese product wherein said EPS is capable of improving at least one of the texture, aroma, flavour, mildness, consistency, body, mouth feel, firmness, viscosity, gel fracture, wheying off, syneresis, structure and/or organoleptic properties, nutrition and/or health benefits of the cheese product.
- 35 35. Use of EPS produced by the process of any of claims 30, 31 or 32 for modulating the texture of a cheese product.
- 30 36. Use of EPS produced by the process of any of claims 30, 31 or 32 for improving the texture of a low fat cheese product.
37. DSM 15889.
- 35 38. A cheese product, a method, a process, or a use substantially as described herein.